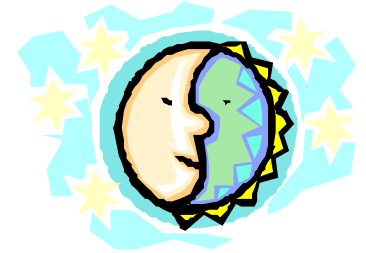
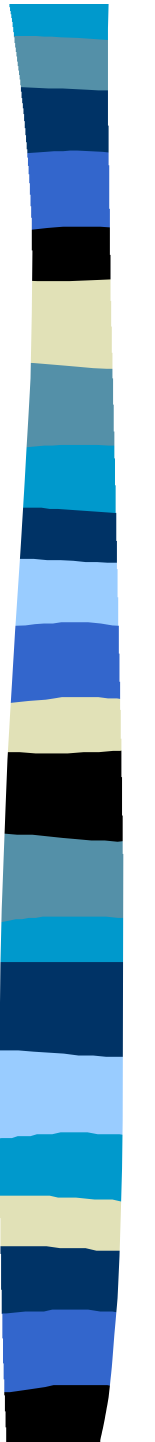




## *Jupiter's moon: Europa*



- ❁ Radius = 1565 km (about the size of Earth's Moon)
- ❁ Density ~3 grams/cc
- ❁ Surface - primarily water ice (H<sub>2</sub>O)  
(from earth-based and spacecraft measurements)
- ❁ Io (Europa's neighbor) is volcanically active from *tidal heating*
- ❁ Could Europa have also experienced tidal heating and have a subsurface ocean?



## *Galileo Mission and Galileo Europa Mission*



**Does Europa's icy surface have evidence  
that a subsurface ocean is or was  
present?**

- Ice volcanism?
- Melting?
- Other surface features (e.g. cracks)?

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## *What did Galileo find?*



- ❁ **G1 (the first orbit) -- ice “plates” that could have moved on a liquid or plastic sublayer. Few impact craters.**
- ❁ **G2 -- Dark (mottled) terrain. Few impact craters.**
- ❁ **C3 -- Dark wedges....plastic or liquid.**
- ❁ **E4 -- Callenish (a large impact); Smooth plains (the “puddle”); Ridges**
- ❁ **5th orbit -- solar conjunction (no data)**

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## *What did Galileo find?*



- ❁ E6 -- Icebergs!!...and more ridges
- ❁ E11 -- Disruption in other regions
- ❁ E12 -- Pwyll (an impact crater), high resolution of disruption and ridges
- ❁ E14 -- more wedges and disruption
- ❁ E15 -- near terminator mapping, stereo
- ❁ E16 -- spacecraft safing (no data)

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## *What is Galileo finding?*



- ❁ **E17 -- current playback -- comparison w/ earlier orbits; candidate tectonic and volcanic features; south pole.**
- ❁ **E18 -- begins November 22**
- ❁ **E19 -- plume search**
- ❁ **E25 -- poorly seen hemisphere**

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## *An ocean on Europa?*



- ❁ In the past....yes
- ❁ In the present....maybe
- ❁ In the future...Europa Orbiter Mission....

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## *What about oceans on Jupiter's other moons?*



- ❁ **Io -- a rocky planet ... no.**
- ❁ **Callisto -- recent findings suggest “yes”.**
- ❁ **Ganymede -- we’re looking....**

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